What is claimed is:

1. A one-pot polyvinyl acetate copolymer aqueous emulsion, wherein the polyvinyl acetate copolymer has the following formula (I):

wherein:

n represents an integer of from 0 to 5;

a ratio of x/y is from 4 to 1000;

a molecular weight of the polyvinyl acetate copolymer is from 1,000 to 800,000.

- 2. The one-pot polyvinyl acetate copolymer aqueous emulsion according to claim 1, wherein the ratio of x/y is from 4 to 190.
- 3. The one-pot polyvinyl acetate copolymer aqueous emulsion according to claim 1, wherein the ratio of x/y is from 15 to 190.
- 4. A method for producing the one-pot polyvinyl acetate copolymer aqueous emulsion according to claim 1, which comprises the steps of:

  reacting vinyl acetate with silicon monomer containing ethylenically unsaturated functional group represented by the following formula (II) in the presence of

catalyst in aqueous medium at an atmosphere pressure:

$$CH_2 = CH - (CH_2)_n - Si(R^1)_m (R^2)_{3-m}$$
 (II)

wherein  $R^{1}=C_{1-6}$  alkyl group;

 $R^2 = C_{1-40}$  alkoxy group, preferably  $C_{1-12}$  alkoxy group;

n=0 to 5;

m=0 to 3;

to produce the aqueous emulsion of the polyvinyl acetate of following formula (I):

wherein:

n represents an integer of from 0 to 5;

a ratio of x/y is from 4 to 1000;

a molecular weight of the polyvinyl acetate copolymer is from 1,000 to 800,000; wherein the silicon monomer containing ethylenically unsaturated functional group is 0.01 to 15 % based on the total weight of vinyl acetate and the silicon monomer.

- 5. The method according to claim 4, wherein the reaction is carried out at a temperature of from 55 to 90°C.
- 6. The method according to claim 4, which further comprises a step of aging the

copolymer at a temperature of from 65 to 95°C.

- 7. The method according to claim 4, wherein the catalyst is persulfate.
- 8. The method according to claim 7, wherein the persulfate is selected from the group consisting of ammonium persulfate, sodium persulfate, potassium persulfate, and a combination thereof.
- 9. The method according to claim 4, wherein the catalyst is peroxide.
- 10. The method according to claim 9, wherein peroxide is selected from the group consisting of hydrogen peroxide, benzoyl peroxide, and a combination thereof.
- 11. The method according to claim 4, wherein the silicon monomer containing ethylenically unsaturated functional group is 0.5 to 3 % based on the total weight of vinyl acetate and the silicon monomer.